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<b>UTILITY PATENT APPLICATION TRANSMITTAL</b>  <small>(Only for new nonprovisional applications under 37 CFR 1.53(b))</small>	<i>Title of Invention</i>	Method and System for Identifying Program Module Functionality Needed by a Computer when Disconnected from a Network
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<b>APPLICATION ELEMENTS</b>		Assistant Commissioner for Patents <b>ADDRESS TO:</b> Box Patent Application Washington, D.C. 20231			
1. <input type="checkbox"/> Fee Transmittal Form <small>(Submit an original, and a duplicate for fee processing)</small> 2. <input checked="" type="checkbox"/> Specification, Claims, and Abstract Total Pages <b>20</b> 3. <input checked="" type="checkbox"/> Drawings Total Sheets <b>4</b> 4. Oath or Declaration Total Pages <b>4</b> a. <input type="checkbox"/> Newly executed (original or copy) b. <input type="checkbox"/> Copy from prior application (37 CFR 1.63(d)) <small>(for continuation/divisional with Box 17 completed)</small> <b>[Note Box 5 Below]</b> (i) <input type="checkbox"/> <u>DELETION OF INVENTOR(S)</u> Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b). 5. <input type="checkbox"/> Incorporation by Reference <small>(usable if Box 4b is checked)</small> The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein. 6. <input type="checkbox"/> Microfiche Computer Program <i>(Appendix)</i> 7. <input type="checkbox"/> Nucleotide and/or Amino Acid Sequence Submission <i>(if applicable, all necessary)</i> a. <input type="checkbox"/> Computer Readable Copy b. <input type="checkbox"/> Paper Copy (identical to computer copy) c. <input type="checkbox"/> Statement verifying identity of above copies		<b>ACCOMPANYING APPLICATION PARTS</b> 8. <input type="checkbox"/> Assignment Papers (cover sheet & document(s)) 9. <input type="checkbox"/> 37 CFR 3.73(b) Statement <small>(when there is an assignee)</small> <input type="checkbox"/> Power of Attorney by assignee 10. <input type="checkbox"/> English Translation Document <i>(if applicable)</i> 11. <input type="checkbox"/> Information Disclosure Statement (IDS) PTO-1449 <input type="checkbox"/> Copies of IDS Citations 12. <input type="checkbox"/> Preliminary Amendment 13. <input checked="" type="checkbox"/> Return Receipt Postcard (MPEP 503) <small>(Should be specifically itemized)</small> 14. <input type="checkbox"/> Small Entity Statement(s) <input type="checkbox"/> Statement filed in prior application Status still proper and desired 15. <input type="checkbox"/> Certified Copy of Priority Document(s) 16. <input type="checkbox"/> Other: _____ _____ _____			
17. If a <b>CONTINUING APPLICATION</b> , check appropriate box and supply the requisite information: <input type="checkbox"/> Continuation <input type="checkbox"/> Divisional <input type="checkbox"/> Continuation-in-part (CIP) of prior application No:					
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1  
2  
3       **METHOD AND SYSTEM FOR IDENTIFYING**  
4       **PROGRAM MODULE FUNCTIONALITY NEEDED BY**  
5       **A COMPUTER WHEN DISCONNECTED FROM A**  
6       **NETWORK**  
7

8       **Technical Field**

9               This invention relates to identifying program module  
10       functionality needed by a computer. More particularly, this  
11       invention relates to a method and system for identifying the  
12       program module functionality needed by a computer when  
13       disconnected from a network and storing this program module  
14       functionality on the computer's hard drive.  
15

16       **Background of the Invention**

17               Mobile or laptop computing has become more  
18       popular as mobile computers have decreased in price and  
19       increased in performance. Many mobile computer users use their  
20       computers to connect to a network at the office. These same users  
21       may disconnect from the network to use their mobile computers  
22       when away from the office. Mobile computing demands that  
23       users have access in a disconnected environment to the data and  
24       the applications that are typically available in a connected  
25       environment, i.e., when connected to a network. While preparing  
26       for offline use, users generally think in terms of documents, not  
27       in terms of applications. Mobile computers do not provide an  
28       intelligent list of applications which may be needed when the  
29       mobile computer is disconnected from the network.  
30

31               As mobile computing becomes prevalent, the  
32       transition between network-connected use and offline use should  
33       be transparent, quick and painless. A mobile computer user  
34       should not have to worry about the management of applications  
35       and documents on her laptop. The mobile computer user needs to  
      make sure that the documents and applications required when the

1 unit is offline are on the mobile computer before disconnecting it.  
2 Thus, there is a need for a method and system for managing the  
3 documents and files that are needed on a mobile computer when  
4 the mobile computer is disconnected from a network.

5 However, having needed files and documents on a  
6 mobile computer does not mean that the application program  
7 functionality needed to run these documents is locally available,  
8 i.e. stored on the mobile computer. Thus, there is a need for a  
9 method and system for intelligently identifying a list of documents  
10 the user may need when offline and mapping the documents to the  
11 necessary application program functionality needed to execute the  
12 documents.

13 Thus, given a set of documents, there is a need for a  
14 method and system for mapping the set of documents to a set of  
15 application program functionality required to run the set of  
16 documents. There is a further need for a method and system for  
17 a method and system for intelligently identifying a list of  
18 documents that may be needed by a user when off-line, i.e.,  
19 disconnected from a network.

20

## 21 **Summary of the Invention**

22 The present invention satisfies the above described  
23 needs by providing a method and system for identifying the  
24 program application functionality needed by a computer when  
25 disconnected from a network and storing this program module  
26 functionality on the computer.

27 In one aspect, the invention identifies a handler  
28 routine for each file saved to a local computer, or marked to be  
29 available off-line, and sending each file to the identified handler  
30 routine. The handler routine may then determine the application  
31 program functionality required to execute each file, i.e., read and  
32 edit a file. The application program functionality may comprise  
33 products, features and components as defined below in the  
34 detailed description.

1 In another aspect, the invention identifies a handler  
2 routine for each file in the set of files by identifying a type for the  
3 file by mapping a file extension for each file to a class  
4 identification. Then, for each file in the set of files, the class  
5 identification is mapped to a handler routine and each file is sent  
6 to the mapped handler routine.

7 In still another aspect, the present invention  
8 comprises a document identification engine (DIE) for creating a  
9 list of files stored locally on a computer. The DIE sends the list  
10 of files to a document-mapping engine (DME), which identifies a  
11 proper handler routine for each file in the list of files. The DME  
12 then sends each file to the proper handler routine(s). The handler  
13 routine(s) identifies the application program functionality needed  
14 to execute each file and sends a list of needed application  
15 functionality to the DME or a migration engine (ME). The ME  
16 determines the current status of the needed application  
17 functionality. If the status of the needed application functionality  
18 indicates that the needed application program functionality is not  
19 installed locally on the computer, then the ME may install the  
20 needed application program functionality to the computer.

21 These and other features, advantages, and aspects of  
22 the present invention may be more clearly understood and  
23 appreciated from a review of the following detailed description of  
24 the disclosed embodiments and by reference to the appended  
25 drawings and claims.

## 26 27 **Brief Description of the Drawings**

28 Fig. 1 is a block diagram of a computer that provides  
29 the exemplary operating environment for the present invention.

30 Fig. 2 is a block diagram of typical program modules  
31 that may be included in an exemplary embodiment of the present  
32 invention.

33 Fig. 3 is a flowchart illustrating a method for  
34 identifying application program features needed when a computer

1 is offline in accordance with an embodiment of the present  
2 invention.

3 Fig. 4 is a flowchart illustrating a method for  
4 identifying application program features needed when a computer  
5 is offline in accordance with another embodiment of the present  
6 invention.

### 7 8 **Detailed Description**

9 The present invention is directed to a method and  
10 system for identifying the application program functionality that  
11 may be needed to use a document, or file, when disconnected  
12 from a network environment. In one embodiment, the operating  
13 system may automatically identify the documents that will likely  
14 be needed by the user when his computer is disconnected from the  
15 network. The invention may be incorporated into an operating  
16 system program module. Briefly described, the operating system  
17 allows a user to select the documents, or files, that will be needed  
18 by the user when his computer is disconnected from the network.  
19 It should be understood that different parts of the operating  
20 system, and even other applications, may perform the steps of the  
21 invention described herein. In one embodiment, the invention  
22 identifies the application program functionality that will be  
23 needed to run the documents selected by the user when the  
24 computer is disconnected from the network. The present  
25 invention may also identify whether this application program  
26 functionality is stored locally on the computer, and, if not, the  
27 present invention may store this application program functionality  
28 locally on the computer.

29 Having briefly described embodiments of the present  
30 invention, an exemplary operating environment for the present  
31 invention is described below.

### 32 33 **Exemplary Operating Environment**

34 Referring now to the drawings, in which like  
35 numerals represent like elements throughout the several figures,

1 aspects of the present invention and the exemplary operating  
2 environment will be described.

3           Fig. 1 and the following discussion are intended to  
4 provide a brief, general description of a suitable computing  
5 environment in which the invention may be implemented. While  
6 the invention will be described in the general context of an  
7 operating system that runs in conjunction with a personal  
8 computer, those skilled in the art will recognize that the invention  
9 also may be implemented in combination with other program  
10 modules. Generally, program modules include routines,  
11 programs, components, data structures, etc. that perform  
12 particular tasks or implement particular abstract data types.  
13 Moreover, those skilled in the art will appreciate that the  
14 invention may be practiced with other computer system  
15 configurations, including hand-held devices, multiprocessor  
16 systems, microprocessor-based or programmable consumer  
17 electronics, minicomputers, mainframe computers, and the like.  
18 The invention may also be practiced in distributed computing  
19 environments where tasks are performed by remote processing  
20 devices that are linked through a communications network. In a  
21 distributed computing environment, program modules may be  
22 located in both local and remote memory storage devices.

23           With reference to Fig. 1, an exemplary system for  
24 implementing the invention includes a conventional personal  
25 computer **20**, including a processing unit **21**, a system memory  
26 **22**, and a system bus **23** that couples the system memory to the  
27 processing unit **21**. The system memory **22** includes read only  
28 memory (ROM) **24** and random access memory (RAM) **25**. A  
29 basic input/output system **26** (BIOS), containing the basic routines  
30 that help to transfer information between elements within the  
31 personal computer **20**, such as during start-up, is stored in ROM  
32 **24**. The personal computer **20** further includes a hard disk drive  
33 **27**, a magnetic disk drive **28**, e.g., to read from or write to a  
34 removable disk **29**, and an optical disk drive **30**, e.g., for reading  
35 a CD-ROM disk **31** or to read from or write to other optical

media. The hard disk drive **27**, magnetic disk drive **28**, and optical disk drive **30** are connected to the system bus **23** by a hard disk drive interface **32**, a magnetic disk drive interface **33**, and an optical drive interface **34**, respectively. The drives and their associated computer-readable media provide nonvolatile storage for the personal computer **20**. Although the description of computer-readable media above refers to a hard disk, a removable magnetic disk and a CD-ROM disk, it should be appreciated by those skilled in the art that other types of media which are readable by a computer, such as magnetic cassettes, flash memory cards, digital video disks, Bernoulli cartridges, and the like, may also be used in the exemplary operating environment.

A number of program modules may be stored in the drives and RAM **25**, including an operating system **35**, one or more application programs **36**, installer program module **37**, program data **38**, and other program modules (not shown).

A user may enter commands and information into the personal computer **20** through a keyboard **40** and pointing device, such as a mouse **42**. Other input devices (not shown) may include a microphone, joystick, game pad, satellite dish, scanner, or the like. These and other input devices are often connected to the processing unit **21** through a serial port interface **46** that is coupled to the system bus, but may be connected by other interfaces, such as a game port or a universal serial bus (USB). A monitor **47** or other type of display device is also connected to the system bus **23** via an interface, such as a video adapter **48**. In addition to the monitor, personal computers typically include other peripheral output devices (not shown), such as speakers or printers.

The personal computer **20** may operate in a networked environment using logical connections to one or more remote computers, such as a remote computer **49**. The remote computer **49** may be a server, a router, a peer device or other common network node, and typically includes many or all of the

1 elements described relative to the personal computer **20**, although  
2 only a memory storage device **50** has been illustrated in Fig. 1.  
3 The logical connections depicted in Fig. 1 include a local area  
4 network (LAN) **51** and a wide area network (WAN) **52**. Such  
5 networking environments are commonplace in offices, enterprise-  
6 wide computer networks, Intranets and the Internet.

7           When used in a LAN networking environment, the  
8 personal computer **20** is connected to the LAN **51** through a  
9 network interface **53**. When used in a WAN networking  
10 environment, the personal computer **20** typically includes a  
11 modem **54** or other means for establishing communications over  
12 the WAN **52**, such as the Internet. The modem **54**, which may be  
13 internal or external, is connected to the system bus **23** via the  
14 serial port interface **46**. In a networked environment, program  
15 modules depicted relative to the personal computer **20**, or  
16 portions thereof, may be stored in the remote memory storage  
17 device. It will be appreciated that the network connections shown  
18 are exemplary and other means of establishing a communications  
19 link between the computers may be used.

20

## 21 **Discussion of Terminology**

22           Before discussing Fig. 2, a brief discussion of  
23 terminology is needed. In accordance with an exemplary  
24 embodiment of the present invention, the installer program  
25 module **37** recognizes three principal elements: products, features  
26 and components. The installer program module **37** is also  
27 described in co-pending application serial no. \_\_\_\_\_, entitled  
28 "Use of Relational Databases for Software Installation", which is  
29 assigned to the same assignee, filed on September 21, 1998, and  
30 incorporated by reference herein.

31           A "product" represents an entire application  
32 program, such as the "MICROSOFT OFFICE" application  
33 program marketed by Microsoft Corporation of Redmond,  
34 Washington. Each product has a globally unique identifier known



1 as a Product Code which allows each product to be distinguished.  
 2 Each product is made up of one or more features.

3 A feature is a granular piece of the product that a  
 4 user may choose to install. Features typically correspond roughly  
 5 to the functional features of the product itself, such as a "Proofing  
 6 Tools" feature or a "WORD" feature. Each feature is essentially  
 7 a grouping of components and may also include other features.  
 8 Features need not be globally unique, and therefore may be  
 9 identified by any appropriate means, such as with a textual feature  
 10 identifier.

11 A component is a collection of resources, such as  
 12 files or registry keys, that are all installed or uninstalled as a unit.  
 13 Components are the building blocks of the product that are not  
 14 exposed to the user. A resource, such as a file or a registry key,  
 15 may be part of only one component. Two components may not  
 16 share the same resource whether they are part of the same  
 17 product or parts of different products. Each component has a  
 18 globally unique identifier known as a Component Code. One  
 19 resource within the component is designated as a key file. The  
 20 key file may be any resource, such as a file or registry key,  
 21 within the component.

22 As used herein, application program functionality  
 23 will be used to refer to products, features and components.

## 24 25 **Identifying Needed Files and Application Program** 26 **Functionality**

27 As mentioned above in the Background, application  
 28 program modules do not currently provide a management tool  
 29 that allows users to identify their off-line application needs, and  
 30 synchronize their data with the applications required to use the  
 31 data. In addition, data formats are becoming increasingly  
 32 complex and users need to have a way to manage complex data  
 33 formats, such as OLE structured storage with embedded OLE  
 34 objects or HTML pages with multiple links. Moreover, as  
 35 described above in the Terminology section, some application  
 36 program modules now have functionality that may be installed on-

1 demand, so there may be more instances of disconnected  
2 computers not being able to run documents because the needed  
3 functionality may not be installed on the computer. The present  
4 invention allows application program modules to be intelligent  
5 about document and feature management and, thus, reduces the  
6 offline user's burden.

7 The invention is a system and method for identifying  
8 a list of documents, or files, and application program module  
9 functionality that a user may need when the computer is  
10 disconnected from a network. The invention may be used with  
11 laptop computers or desktop computers which are connected to a  
12 network.

13 In one embodiment, the present invention observes  
14 the user's usage pattern to make intelligent guesses regarding  
15 which documents should be available offline and allows the user  
16 to modify the selection. In another embodiment, the present  
17 invention identifies class identifications (type and owner) of these  
18 selected documents. In still another embodiment, the present  
19 invention maps these class identifications to the appropriate  
20 product and feature identifications needed to run, or execute,  
21 these documents.

22 Referring now to Fig. 2, a block diagram of typical  
23 program modules that may be included in an exemplary  
24 embodiment **200** of the present invention is illustrated. Ensuring  
25 that the appropriate documents and the required application  
26 program functionality are available offline may begin by choosing  
27 documents to be made available offline. This is typically  
28 performed via a Document Identification Engine (DIE) **205**.

29 The DIE **205** comprises a set of rules and/or a user  
30 interface to determine a default list of folders and files the user  
31 will have when offline. This default list typically includes, but is  
32 not limited to:

- 33 • The "My documents" folder;
- 34 • Recently used documents;

- 1 • Documents and folders that the user has specifically marked as
- 2 “Need when off-line”. For example, every time the user
- 3 creates/publishes a document, he or she can mark it as “Need
- 4 when off-line”;
- 5 • The “Desktop” folder; and
- 6 • Dependent files, e.g., links and embeddings in a document,
- 7 macros that are associated with command bars, etc.

8           Given the above set of document locations, or a  
 9 similar set, the DIE **205** may yield a list of documents required  
 10 for offline use. Multiple DIEs may be required due to different  
 11 types of storage (for example, web servers, file servers, MAPI  
 12 stores, etc.).

13           This list generated by the DIE **205** is then collected  
 14 by a Document-Mapping Engine (DME) **210**. The DME **210**  
 15 uses the list to determine which functionalities and applications the  
 16 user requires. The DME identifies document classes and compiles  
 17 a list of class identifications.

18           The DME **210** may yield a set of program module  
 19 functionalities which is required for the selected offline  
 20 documents. For each document in the list furnished by the DIE  
 21 **205**, the DME **210** may identify the class ID of the type of  
 22 document based on document extensions. The DME **210** may  
 23 also identify the class ID of the type of document by using more  
 24 than document extensions. For example, for OLE-composed  
 25 documents, the class ID is actually stored in the file itself. It may  
 26 then compile this into a list of class identifications to be handed  
 27 off to the specific document handlers.

28           As mentioned above, the Document Mapping Engine  
 29 (DME) **210** may identify the class IDs for each document  
 30 identified by the Document Identification Engine (DIE) **205**.  
 31 However, it should be understood that mapping a document to a  
 32 proper handler routine may be performed several different ways,  
 33 such as by using a document extension, etc. Each document will  
 34 then be handed to a handler **215** specific to its document type.  
 35 The handler may then map the file to product and feature

1 identifications known by the installer program module **37**. As  
 2 mentioned, specific document handlers **215** may perform this  
 3 mapping of document class identifications. Each different handler  
 4 may return product and feature mappings for a specific document  
 5 type. For example, one or more OFFICE handlers may  
 6 understand OFFICE file formats and be able to map format  
 7 contents to specific OFFICE features.

8 The handler **215** may identify the product and  
 9 features necessary for the specified document, and return the  
 10 required product and features to the DME **210**. The DME will  
 11 collect all of the product and feature identifications for all of the  
 12 documents, and may sort them according to frequency of the  
 13 occurrence of any given product and feature ID. However, the  
 14 handlers themselves may also return importance rankings instead  
 15 of leaving the decision of importance to the DME. The product  
 16 and feature identifications are then sent to a Migration Engine  
 17 **220** (ME).

18 The Migration Engine (ME) **220** may be able to  
 19 identify the application functionality that is most critical given the  
 20 document types that are most prevalent. This list will then be  
 21 used by the Migration Engine to install the necessary application  
 22 functionality. It should also be understood that decisions could be  
 23 made based on factors other than which document types are most  
 24 prevalent.

25 In the event that the ME determines that it cannot  
 26 install all the requested application functionality due to a lack of  
 27 disk space, it will return the list of documents to the DIE. The  
 28 DIE will then present the user with an interface that allows them  
 29 to modify their selection of documents.

30 Referring now to Fig. 3, a flowchart illustrating a  
 31 method **300** for identifying application program functionality  
 32 needed when a computer is offline in accordance with an  
 33 embodiment of the present invention will be described. The  
 34 method begins at start step **305** and proceeds to step **310**. At step  
 35 **310**, the files, or documents, to be stored locally on the computer

1 is determined. It should be understood that the process of  
2 determining the files to be stored locally on the computer may be  
3 a manual process, such as the user storing files locally on the  
4 computer. It should also be understood that the process of  
5 determining the files to be stored locally on the computer may be  
6 an automatic process. For example, the operating system may  
7 include a set of rules for determining a default list of folders and  
8 files the user will need when offline.

9 After the files to be stored locally on the computer  
10 are determined at step **310**, the method proceeds to step **315**.  
11 The types of files stored locally on the computer are identified  
12 and the files are sent to a proper handler routine at step **315**. For  
13 example, all WORD files stored locally on the computer are sent  
14 to a handler that understands WORD documents. The method  
15 then proceeds to step **320**.

16 At step **320**, the application program functionality  
17 needed to execute the files is identified by the handler routine(s).  
18 The method **300** then proceeds to step **325**.

19 At step **325**, the application program functionality  
20 needed, and not already installed locally, is installed locally on the  
21 computer. The method ends at step **399**.

22 Referring now to Fig. 4, a flowchart illustrating a  
23 method **400** for identifying application program functionality  
24 needed when a computer is offline in accordance with an  
25 embodiment of the present invention will be described.

26 The method **400** begins at start step **405** and  
27 proceeds to step **410** where a Document Identification Engine  
28 (DIE) determines the files, or documents, to be stored on the local  
29 computer and the types of files that are to be stored locally (such  
30 as .doc, .htm, .xls). The method **400** then proceeds to step **415**.  
31 The DIE may be triggered when the user shuts down the  
32 computer or undocks the computer. The DIE may also be  
33 triggered manually by the user from the control panel, start  
34 menu, or otherwise.

1           At step **415**, the DIE creates a list of files  
2 determined at step **410** and these files are stored locally to the  
3 computer if they are not already stored locally. The method **400**  
4 then proceeds to step **420**.

5           At step **420**, the list of files created by the DIE at  
6 step **415** is transferred to a Document Mapping Engine (DME).  
7 The method **400** then proceeds to step **425**.

8           At step **425**, the DME identifies a handler routine  
9 for each file. It should be understood that the DME may identify  
10 the type of files by mapping the file extension (such as .doc, .http,  
11 .xls) to a class identification. It should be understood that each  
12 class identification may be associated with a handler routine. It  
13 should also be understood that the proper handler routine may be  
14 identified by other means, such as by OLE-compound document  
15 CLSID. The method **400** then proceeds to step **430**.

16           At step **430**, the DME sends each file to its proper  
17 handler routine for processing. The method **400** then proceeds to  
18 step **435**. At step **435**, each handler routine is used to identify  
19 specific needs and requirements for a particular file. For  
20 example, certain application program functionality may be needed  
21 to execute a particular file while other application program  
22 functionality may be needed to execute other files. Each handler  
23 routine maps a file itself to the application program features that  
24 need to be installed for the file to execute. The method **400** then  
25 proceeds to step **440**.

26           At step **440**, the handler routines return the  
27 application program functionality needed for each file to the  
28 DME so that the DME has a complete list of all the application  
29 program functionality needed to execute the saved local files. The  
30 method then proceeds to step **445**. It should be understood that it  
31 is possible that the DME will need to send one or more new files  
32 to a handler routine in response to the instructions from the  
33 handler routines. For example, an EXCEL spreadsheet may  
34 contain an embedded WORD document. In that case, the EXCEL  
35 handler routine may not recognize the WORD document and may

1 return the WORD document to the DME to determine the proper  
2 handler routine for the WORD document. The DME would then  
3 transmit the WORD document to the proper handler.

4 At step **445**, the DME **210** transmits the list of  
5 needed application program functionality to a migration engine  
6 (ME) **220**. The method then proceeds to step **450**. At step **450**,  
7 the ME **220** determines the current status of the application  
8 program functionality, i.e., whether the functionality is available  
9 and installed locally. The method then proceeds to step **455**.

10 At step **455**, any application program functionality  
11 that is not installed locally is installed to the local computer, if it  
12 is available. The method **400** then ends at step **499**.

13 Thus, from the foregoing description, it will be  
14 apparent to those skilled in the art that the present invention  
15 provides a method and system for identifying a set of application  
16 program functionality that may be needed on a computer by a  
17 user when the computer is disconnected from a network  
18 environment, or when a computer does not have a CD-ROM  
19 connection. For example, a home user may have a laptop  
20 computer with a docking station, but not have the computer  
21 connected to a network. When at home, the user can use the CD-  
22 ROM drive attached to the docking station to run application bits  
23 "from the source." However, when disconnected from the  
24 docking station, the laptop computer has no CD-ROM drive and  
25 the user will need the bits to be local.

26 It should be understood that the storing of the  
27 application functionality to the local computer may be done on a  
28 priority basis to deal with storage constraints. For example, if six  
29 word processing documents are stored locally and one spreadsheet  
30 document is stored locally, then the application functionality for  
31 the word processor should be stored to the local computer before  
32 attempting to store the spreadsheet functionality. It should also be  
33 understood that the user may be presented with the option of  
34 determining which applications need to be stored locally if there  
35 are storage constraints.

1           It should also be understood that if a single file  
2 comprises other types of files, then the handler will be able to  
3 identify these other type files or send them back to the DME so  
4 that they may be sent to a proper handler routine. For example,  
5 if a word processing document comprises a spreadsheet document,  
6 then the handler will be able to identify these types of files and  
7 send them to their proper handler. Thus, the present invention  
8 will be able to identify when a single document needs multiple  
9 application functionality. This concept may be referred to as  
10 embedded mapping. Thus, for any sub-part of a file (such as an  
11 OLE sub-storage or a hyperlink), the handler may send the sub-  
12 part back to the DME which may try to map it to a different  
13 handler.

14           It will also be understood that alternative  
15 embodiments will become apparent to those skilled in the art to  
16 which the present invention pertains without departing from its  
17 spirit and scope. Accordingly, the scope of the present invention  
18 is defined by the appended claims rather than the foregoing  
19 description.



1   **Claims**

2   What is claimed is:

3

4                   1.   A method for identifying application  
5   functionality needed to run a set of files when a computer is  
6   disconnected from a network, the method comprising the steps of:

7                   for each file in the set of files, identifying a handler  
8   routine and sending each file to the identified handler routine; and

9                   for each file in the set of files, in the mapped handler  
10   routine, determining the application program functionality  
11   required to execute each file.

12

13                   2.   The method of Claim 1, wherein the  
14   application functionality comprises products, features and  
15   components.

16

17                   3.   The method of Claim 1, further comprising the  
18   steps of:

19                   identifying the set of files; and

20                   storing the set of files on the computer.

21

1  
2 4. A method for identifying a set of files and  
3 application functionality needed to run the set of files when the  
4 computer is disconnected from a network, the method comprising  
5 the steps of:

6 determining the set of files to be stored locally on the  
7 computer;

8 storing the set of files locally on the computer;

9 for each file, identifying application functionality  
10 needed to run each file; and

11 installing the identified application functionality  
12 locally on the computer.

13  
14 5. The method of Claim 4, wherein the step of  
15 determining the set of files to be stored locally on the computer  
16 comprises receiving user input, wherein the user input  
17 corresponds to a plurality of files that are to be stored locally on  
18 the computer.

19  
20 6. The method of Claim 4, wherein the step of  
21 determining the set of files to be stored locally on the computer  
22 comprises the steps of:

23 searching a plurality of files in a plurality of storage  
24 locations on the computer;

25 determining whether each file found in the plurality  
26 of storage locations is to be stored locally on the computer; and

27 if so, then adding the file to the set of files.

28  
29 7. The method of Claim 4, wherein the step of  
30 identifying application functionality needed to run each file  
31 comprises the steps of:

32 identifying a type for each file;

33 associating each type with a handler routine; and

34 sending each file to its associated handler routine.

35

1                   8.    The method recited in Claim 7, wherein the  
2 handler routine comprises instructions for scanning each file and  
3 determining the application functionality that is needed to execute  
4 each file.

5  
6                   9.    The method recited in Claim 8 wherein  
7 application functionality comprises programs, features and  
8 components.

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1  
2           10. A method for identifying a set of application  
3 functionality to be stored on a computer connected to a network,  
4 comprising the steps of:

5               causing a document identification engine (DIE) to  
6 create a list of a plurality of files stored locally on the computer;

7               sending the list of files from the DIE to a document  
8 mapping engine (DME);

9               causing the DME to identify a proper handler routine  
10 for each file in the list of files;

11              sending each file from the DME to the proper  
12 handler routine;

13              causing the handler routine to identify the application  
14 functionality needed to execute each file;

15              sending a list of needed application program  
16 functionality for the handler routine to the DME;

17              sending a list of needed application program  
18 functionality from the DME to a migration engine (ME);

19              causing the ME to determine the current status of the  
20 needed application functionality; and

21              if the status of the needed application functionality  
22 indicates that the needed application functionality is not installed  
23 locally on the computer, then causing the ME to install the needed  
24 application functionality to the computer.

25  
26           11. A computer-readable medium comprising  
27 computer-readable instructions, which when executed, performs  
28 the steps of Claim 10.

29  
30  
31

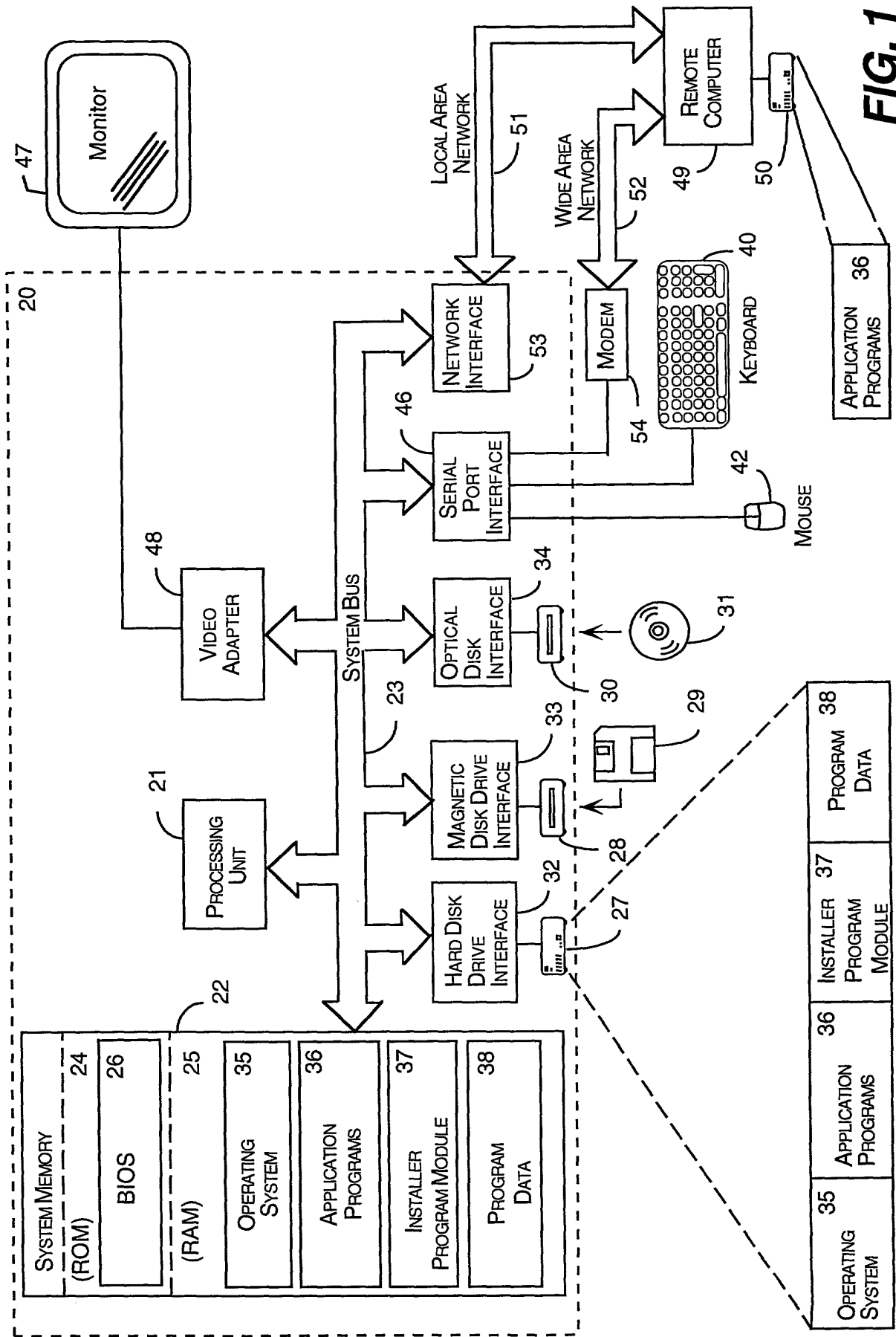
1           **METHOD AND SYSTEM FOR IDENTIFYING**  
2           **PROGRAM MODULE FUNCTIONALITY NEEDED BY**  
3           **A COMPUTER WHEN DISCONNECTED FROM A**  
4           **NETWORK**

5  
6                   **Abstract of the Disclosure**

7                   Identifying program module functionality needed by  
8           a computer when disconnected from a network is disclosed. A  
9           document identification engine (DIE) creates a list of files stored  
10          locally on the computer. The DIE sends the list of files to a  
11          document mapping engine (DME). The DME identifies a proper  
12          handler routine for each file in the list of files and send each file  
13          to the proper handler routine(s). The handler routine(s) identifies  
14          the application functionality needed to execute each file. The  
15          application functionality may include products, features and  
16          components. The handler routine sends a list of needed  
17          application functionality to the DME. If needed, the DME may  
18          send any sub-parts of files to another handler for further  
19          processing, such as when a word processing document includes a  
20          spreadsheet sub-part. The DME also can send the list of needed  
21          application functionality to a migration engine (ME). The ME  
22          determines the current status of the needed application  
23          functionality. If the status of the needed application functionality  
24          indicates that the needed application functionality is not installed  
25          locally on the computer, then the ME installs the needed  
26          application functionality to the computer.

27  
28          Attorney Docket: 13237-2305

29          MS No. 36711.1



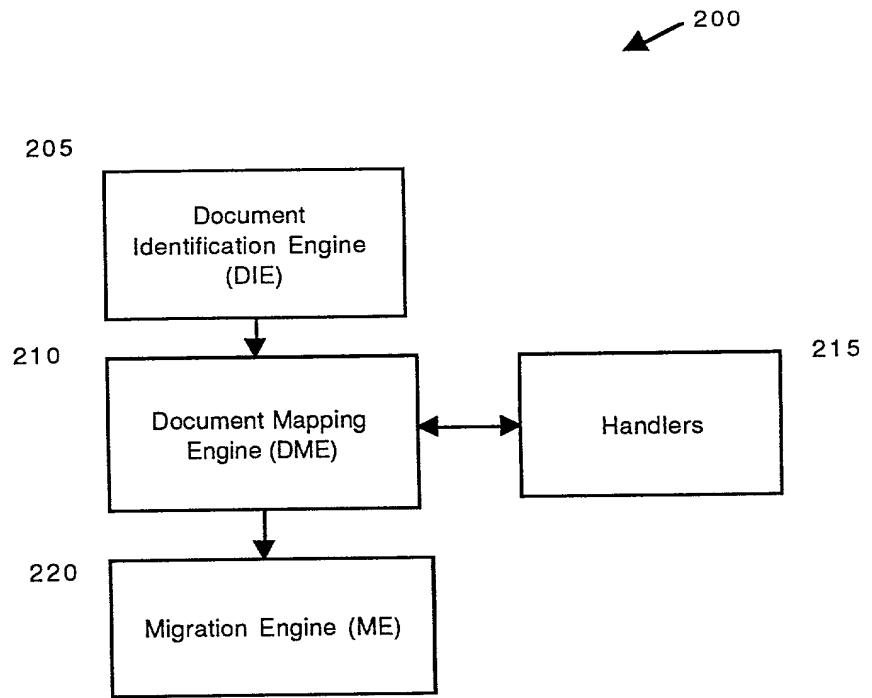


Fig. 2

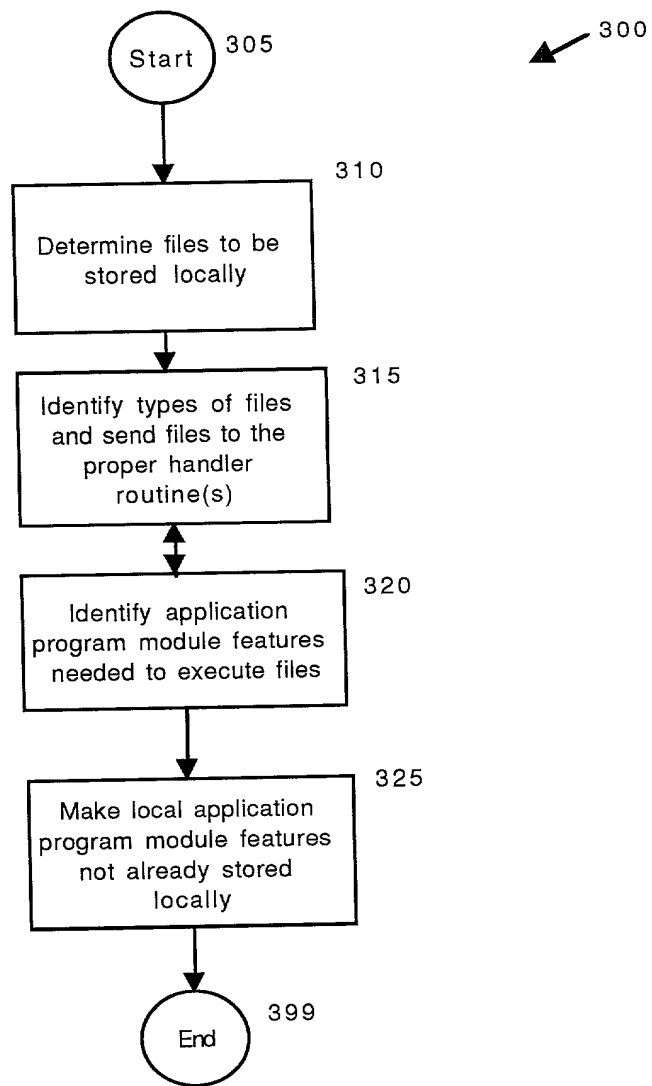


Fig. 3



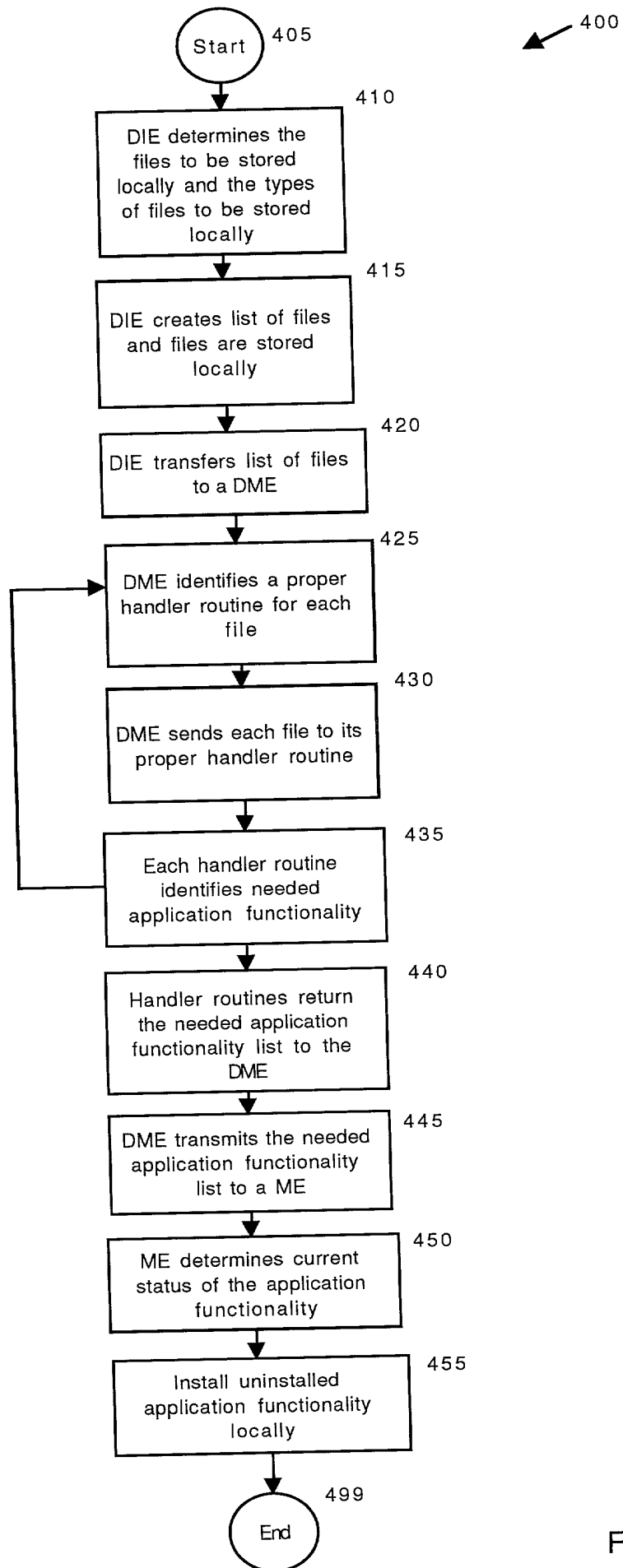


Fig. 4

## DECLARATION AND POWER OF ATTORNEY

Attorney's Docket No. 13237-2305/MS #36711

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none			Yes _____ No _____

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(Application No.)	(Filing Date)	(Application No.)	(Filing Date)

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none		

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**M. Todd Mitchem, Esq.**

Full name of first joint inventor: Jeffrey C. Belt	Citizenship: USA
Inventor's signature	Date:
Residence and Post Office Address: 15600 NE Eighth Street #B-1, Apt. 480, Bellevue, WA 98008	

☒ Additional inventors are being named on separately numbered sheets attached hereto.

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**M. Todd Mitchem, Esq.**

Full name of first joint inventor: Noah B. Edelstein	Citizenship: USA
Inventor's signature	Date:
Residence and Post Office Address: 957 - 18 <sup>th</sup> Avenue East, Seattle, WA 98112	

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**M. Todd Mitchem, Esq.**

Full name of first joint inventor: <u>Maithreyi Lakshmi Ratan</u>	Citizenship: <u>USA</u>
Inventor's signature _____	Date: _____
Residence and Post Office Address: <u>19112 NE 130<sup>th</sup> Street, Redmond, WA 98052</u>	



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